

## **PATIENT MONITORING SYSTEM USING ZIGBEE COMMUNICATION**

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### **ABSTRACT**

A 2.4-GHz Energy-Efficient Transmitter for Wireless Medical Applications, so many medical systems based on wireless communication techniques have been developed to improve human health, such as wireless body sensor networks (WBSNs). The human body worn sensor nodes are used to monitor vital signs, such as temperature and heart rate (ECG) in WBSN. In addition, the function of the sensor nodes can be expanded to medical treatments, such as drug delivery and nerve stimulation. After the biomedical information acquisition, the signal will be preprocessed and the stored information will be transmitted by the RF transceiver to the portable base station. The sensor nodes also receive some control commands from the base station remotely. The main purpose of this project is to monitor human's health in a wireless manner. In our project, temperature sensor, heartbeat sensors are fixed on the human body for inertial sensing. The temperature sensor will sense the human temperature. Heart Beat sensor will sense the heart beats of the patient. Corresponding Sensed signals in the form of physical values are converted into digital values using analog to digital converter which is given as input to the microcontroller. In this controller, we are keeping some threshold value if determined value exceeds, buzzer will indicate that the corresponding person gets conscious. Similarly, the sensor values are displayed in LCD through Zigbee for doctor to analyze in a wireless manner.

**KEYWORDS:** RF Transceiver, Wireless Medical Applications, Zigbee

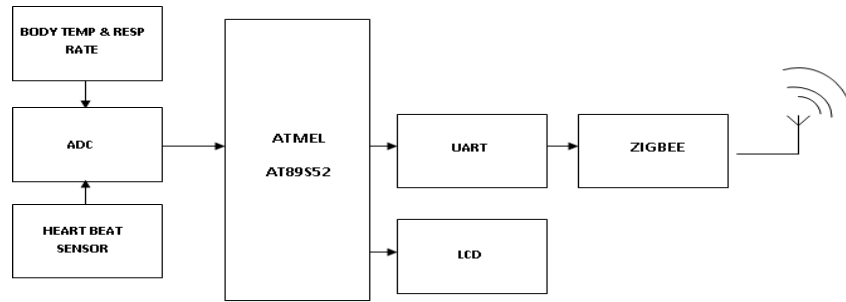
### **INTRODUCTION**

#### **Existing System**

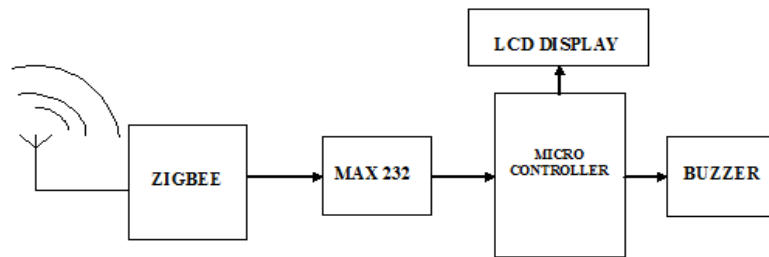
Various data collection methods have been organized and implemented in order to feed the ISPHM-WNV. The 18 regional health authorities of the province are responsible for the mandatory reporting of all human cases of infection by WNV. The population is invited, by means of media campaigns, to report the presence of dead corvidae to a reporting center (WNV-Info line). The location of reported corvidae must be precisely indicated to allow for their collection and subsequent testing. Mosquito monitoring is performed at fixed monitoring stations as well as in potential risk zones identified following the analysis of infected bird clusters. It is essential that the ISPHM-WNV support the integration of the different data sources and provide the required functionalities to assist the numerous actors with their respective tasks (data entry, data localization, data validation, data visualization, data analysis and decision-making).

### **DISADVANTAGES**

- In this system, the health problems related to pulse rate is not considered.
- The health factors such as body temperature, blood pressure are not considered.
- The proposed health monitoring equipment is neither mobile nor compact.



**Figure 1: Transmitter Section**



**Figure 2: Receiver Section**

## PROPOSED SYSTEM

We present a 2.4-GHz energy-efficient transmitter for wireless medical applications. The TX combines the VCO direct modulation mode and the PLL-based mode to achieve the optimum energy efficiency. In particular, the data rate of the PLL based mode can be increased by the frequency presetting technique with low power consumption. The frequency auto calibration Mechanism was implemented in the design. The calibration parameters and the control signals can be stored in the database so that the TX can avoid the repetitive calibration process and save the energy in practical applications.

## ADVANTAGES

- These are also suitable for the design of a smart, compact, and low-power portable base station which makes the medical monitoring available anytime and anywhere.
- The technique can reduce the lock-in time and increase the frequency switching speed greatly so that the data rate of the TX can be increased with low power consumption.

## HARDWARE REQUIREMENTS

- Microcontroller
- Adc
- Uart
- Lcd
- Zigbee
- Body Temperature Sensor
- Heart Beat Sensor

## SOFTWARE REQUIREMENTS

- MP LAB

## CONCLUSIONS

In this paper, the design and development of a low cost HRM device has been presented. The device is ergonomic, portable, durable, and cost effective. The HRM device is efficient and easy to use. Tests have shown excellent agreement with actual heartbeat rates. This device could be used in clinical and nonclinical environments. It can also be easily used by individual users, e.g. athletes during sporting activities. The device could also be used as a monitoring instrument exploiting the SMS capabilities provided by this system. This study used the standard Fourier Transform to compute the spectral density. The overall efficiency of the device could be improved by the use of Fast Fourier Transforms. The device could be further developed into a continuously monitoring device that could be used to detect the heart beat anomalies associated with certain heart conditions. This would be made possible by analyzing the heartbeat signal in the frequency domain.

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